Architectural and Engineering Specifications

Mitsubishi Digital Recorder (DX-TL1600U)

A. Features:

1. The digital multiplexer recorder will not be PC base.
2. The digital multiplexer recorder will be a Mitsubishi 16 channel color recorder.
3. The digital multiplexer recorder shall be of simplex operation and duplex via network connection.
4. The digital reorder will record in MJPEG format with five user selectable compression rates.
5. The digital multiplexer recorder will have two internal 61Giga Byte hard disk drives allowing for 7 days 24 hours of continues recording when recording is set 16 cameras and .93 fields per camera per second.
6. The digital multiplexer recorder will allow connection of up to 2 additional external SCSI 100GB drives increasing the recording period to 17 days of continues 24-hour recording.
7. The digital multiplexer recorder will feature time base correction thus eliminating the need for external camera synchronization.

B. Operation:

1. The digital recorder will be operated via the front panel.
2. The digital multiplexer recorder shall have an easy to follow (VCR like) setup menu system.
3. The digital multiplexer recorder will use a JOG/SHUTTLE combination to navigate and set the various menus and for playback features.
4. The digital multiplexer recorder menu will be in English.

C. Installation:

1. The digital multiplexer recorder shall have composite BNC Inputs and looping outputs for all sixteen cameras.
2. The digital multiplexer recorder will auto detect cameras connected and provide a warning if no input if a cameras is set to record but no signal is present.
3. The digital multiplexer recorder will have a SCSI port to allow connection via external supported devices.
4. The digital multiplexer recorder will support the following listed SCSI devices.

   Archive
   a. OnStream Tape drives (ADR50)
   b. HP SureStore DDS-2, 3

   Copy
   a. Fujitsu MO disk (640MB & 1.3GB)
   b. Matsushita DVD RAM (LF/-D102JD)
   c. IOMEGA Zip Drive (250MB)

   Hard Disk Drives
   a. Two, up to 100GB drives
5. The digital multiplexer recorder will auto detect all external devices connected via its SCSI port.
6. The digital multiplexer recorder will support firmware upgrades via Zip drive
7. The digital multiplexer recorder shall have the ability to synchronize other unit's time clock.

D. Screen modes:

1. The digital multiplexer recorder shall feature three monitor outputs, two composite (BNC) and one S-Video. The primary monitor shall default to S-Video when a cable is connected to this port. If no cable is connected to S-Video port the composite (BNC) port will be used as the default port.
2. The output screen on the main monitor output will be live or recorder video.
3. The video will be selectable in full screen, sequence full screen, quad multi screen, nine and sixteen multi screen and shall display any selected screen pattern while full frame recording is being done.
4. The digital multiplexer recorder shall display live and pre-recorded analog video from any selected camera or sequenced cameras.
5. The digital multiplexer recorder will provide digital zoom from X2 to X4. The digital zoom area shall be selectable by front panel keys.

E. Recording and Playback:

1. The digital multiplexer recorder will record & playback video from any camera as full frame video with a resolution of 684 X 240.
2. The digital multiplexer recorder will record with one camera a maximum of 30 pictures per second and a minimum of 1 picture per second.
3. The digital multiplexer recorder will be able to record in 5 user selectable recording compression grades that will vary a single picture size from a maximum of 42K (Superior) to 12K (Basic).
4. The digital multiplexer recorder will have separate alarm and regular recording.
5. The digital multiplexer recorder shall support timer-recording modes. Timer recording mode shall support, every day, individual day recording, special, recording times where time and camera modes are specified individually. Archiving and power standby will also be supported.
6. The digital multiplexer recorder shall support via timer programming motion detection settings via four recording modes.
7. The digital multiplexer recorder will record a digital water-mark that will validate the original picture authenticity. When this function is activated in playback mode (IM check), the digital water-mark shall be confirmed when the image is played back from original unit or when playback is being done by another unit of the same model via a copy or archive device.
8. The digital multiplexer recorder shall support search functions via camera specific or all for time and date search, alarm search, index search and skip search.
9. The digital multiplexer recorder will be able to play back, pause, reverse play, stop, frame advance or reverse, and five speeds fast forward and rewind.
10. The digital multiplexer recorder will use a Jog/Shuttle for field by field advancement and to activate the various FF or REW speeds.

F. Cameras:

1. The digital multiplexer recorder will support up to 16 color cameras with composite NTSC video.
2. The digital multiplexer recorder will have loop-through inputs for each camera input to connect to other equipment.
3. The digital multiplexer recorder will support activity detection per camera input.
4. The digital multiplexer recorder in normal recording will enable camera settings to have priority settings which will allow greater number of fields by cameras with higher priority.
5. The digital multiplexer recorder when in Alarm recording will support SEPARATE or ALL cameras to record when an Alarm is activated.

G. Archiving:

1. The digital multiplexer recorder will be able to copy a single or series of images to a SCSI Iomega 250MB-zip disk.
2. The digital multiplexer recorder will be able to detect a modified image when played back via the digital recorder.
3. The digital multiplexer recorder will be able to continuously archive images to external SCSI OnStream tape drives and Hewlett Packard DDS-2 or DDS-3 tape drives.
4. The digital multiplexer recorder will automatically detect on power-up any connected SCSI copy or archive device.
5. The digital multiplexer recorder will provide a setting to automatically eject a full archive tape.
6. The digital multiplexer recorder will be able to record and archive at the same time.
7. The digital multiplexer recorder will come with application PC software that will enable playback of images copied to zip disk and played back from PC.
8. The digital multiplexer recorder will support an archive pointer that will mark the last area copied to the archive device enabling the next tape to continue arching the next segment of data. This archive pointer can be reset allowing the archive process to start from the beginning.
9. The digital multiplexer recorder will be able to archive all data or just alarm recorded.

H. Scheduling:

1. The digital multiplexer recorder will have three user defined schedule settings that can be programmed to record day, night activity.
2. The digital multiplexer recorder will support normal day recording and at night activity recording allowing the user to double its disk capacity.
3. The digital multiplexer recorder will be able to use user defined recording modes.
4. The digital multiplexer recorder will support scheduled arching.

I. Alarm and Relays:

1. The digital multiplexer recorder will support separate or all alarm recording. In separate, cameras with alarms will only record. In all recording, when an alarm is activated all cameras will record. In all alarm recording, camera priority will enable cameras with high and low priority to be identified.
2. The digital multiplexer recorder will have an alarm log that can be searched by time date, alarm number or also perform a skip search for quick display of all alarms logged.
3. The digital multiplexer recorder will support pre and post alarm recording.
4. The digital multiplexer recorder will have an alarm contact input per camera.
5. The digital multiplexer recorder will support copy and or archive of alarms.
6. The digital multiplexer recorder will have an alarm in contact per channel, an alarm out to support an external warning signal.
7. The digital multiplexer recorder will have MODE terminal outputs to indicate when the unit is in REC. PLAY, POWER, and REMAIN. An output LOW signal will indicate if mode signal is interrupted.
8. The digital multiplexer recorded will have a CALL terminal output to indicate % capacity remaining of hard disk storage. This terminal will also be used to indicate if a hardware problem occurs within the unit.

J. Activity Detection:

1. The digital multiplexer recorder will feature programmable activity detection on all video channels. When active is turned ON and activity is detected, the event will be recorded as an alarm in the activity log. The activity detection mask will be 12X10 and each pixel can be turned ON or OFF. The mask will have 5 sensitivity levels. A test mode will be also be available that will help the user test their needed mask area and settings.

K. Password:

1. The digital multiplexer recorder will have User Security Access lock modes and Password codes. The LOCK function will lockout customers from all front panel controls. The Password function will also lock out all users from making any changes to the units current running conditions and from making any changes to the units programmed menu settings.

L. Network Capabilities:

1. The digital multiplexer recorder will have the ability to connect to a 10Base-T Ethernet Network.
2. License free Network software (DX-PC3) for Windows® will be included with each unit. This software will also double as playback software playing back images copied to zip disk.
3. Live or pre-recorded images will be able to be viewed via LAN connection using the DX-PC3 application software.
4. The digital multiplexer recorder current functions will not be affected when viewing live or viewing pre-recorded images.
5. The digital multiplexer recorder will be able to save one image (JPEG or bitmap) on to the connecting PC's hard disk.
6. One connection at a time will be able to access the digital multiplexer recorder via the network connection.

Rear Connections:

1. The digital multiplexer recorder will have a SCSI-2 connector that will interface 2 additional hard disk drives, a copy and archive drive.
2. The digital multiplexer recorder will have a termination switch that can be turned ON or OFF providing self-terminating or external termination when external devices are connected to its SCSI-2 port.
3. The digital multiplexer recorder will have rear terminals that will allow the unit to be Powered ON or OFF via direct connection.
4. The digital multiplexer recorder will have a clock adjust terminal enabling the unit's clock to be reset to the nearest hour.
5. The digital multiplexer recorder will have a REC. terminal that will force the unit into REC.
6. The digital multiplexer recorder will have a 9 pin D-Sub connector RS-232 port allowing remote control functions of the unit. The RS-232 command codes will be provided on the units User Manual.
7. The digital multiplexer recorder will have one channel audio recording using PCM digital audio with a sampling rate between 8KHz-12.8KHz.
8. The digital multiplexer recorder will have a Microphone input line enabling audio to be recorded with video.